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Risk Models for Mortality Following Elective Open and Endovascular Abdominal Aortic Aneurysm Repair: A Single Institution Experience

Choke E., Lee K., McCarthy M., Nasim A., Naylor A.R., Bown M., Sayers R. Eur J Vasc Endovasc Surg 2012;44:549-54.

Objectives: To develop and validate an "in house" risk model for predicting perioperative mortality following elective AAA repair and to compare this with other models.

Design: Multivariate logistics regression analysis was used to identify risk factors for perioperative-day mortality from one tertiary institution's prospectively maintained database.

Materials and methods: Consecutive elective open (564) and endovascular (589) AAA repairs (2000–2010) were split randomly into development (810) and validation (343) data sets. The resultant model was compared to Glasgow Aneurysm Score (GAS), Modified Customised Probability Index (m-CPI), CPI, the Vascular Governance North West (VGNW) model and the Medicare model.

Results: Variables associated with perioperative mortality included: increasing age ($P = 0.034$), myocardial infarct within last 10 years ($P = 0.0008$), raised serum creatinine ($P = 0.005$) and open surgery ($P = 0.0001$). The areas under the receiver operating characteristic curve (AUC) for predicted probability of 30-day mortality in development and validation data sets were 0.79 and 0.82 respectively. AUCs for GAS, m-CPI and CPI were poor (0.63, 0.58 and 0.58 respectively), whilst VGNW and Medicare model were fair (0.73 and 0.79 respectively).

Conclusions: In this study, an "in-house" developed and validated risk model has the most accurate discriminative value in predicting perioperative mortality after elective AAA repair. For purposes of comparative audit with case mix adjustments, national models such as the VGNW or Medicare models should be used.

Outcomes of Endovascular Aneurysm Repair in Patients with Hostile Neck Anatomy

Stather P.W., Sayers R.D., Cheah A., Wild J.B., Bown M.J., Choke E. Eur J Vasc Endovasc Surg 2012;44:556-61.

Objectives: This study aims to evaluate outcomes following EVAR in patients with hostile neck anatomy (HNA).

Methods: Data prospectively collected from 552 elective EVARs were analysed retrospectively. Data regarding neck morphology was obtained from aneurysm stent plans produced prior to EVAR. HNA was defined as any of; neck diameter >28 mm, neck angulation >60°, neck length <15 mm, neck thrombus, or neck flare.

Results: 552 patients underwent EVAR. Mean age 73.9 years, mean follow-up 4.1 years. 199 patients had HNA, 353 had favourable neck anatomy (FNA). There was a significant increase in late type I endoleaks (FNA 4.5%, HNA 9.5%; $P = 0.02$) and total reinterventions (FNA 11.0%, HNA 22.8%; $P < 0.01$), and a significant decrease in late type II endoleaks in patients with HNA (FNA 16.7%, HNA 10.6%; $P < 0.05$). There was no significant difference in technical success (FNA 0.6%, HNA 2.0%; $p = 0.12$), 30-day re-intervention (FNA 2.8%, HNA 5.0%; $P = 0.12$), 30-day mortality (FNA 1.1%, HNA 0.5%; $P = 0.45$), 30-day type I endoleaks (FNA 0.8%, HNA 2.5%; $P = 0.12$), 5-year mortality (FNA 15.1%, HNA 14.6%; $P = 0.86$), aneurysm-related mortality (FNA 1.7% versus HNA 2.0%; $P = 0.79$), stent-graft migration (FNA 2.5%, HNA 3.0%; $P = 0.75$), sac expansion (FNA 13.0%, HNA 9.5%; $P = 0.22$), or graft rupture (FNA 1.1%, HNA 3.5%; $P = 0.05$). Binary logistic regression of individual features of HNA revealed secondary intervention ($P = 0.009$), technical failure ($P = 0.02$), and late type I endoleaks ($P = 0.002$), were significantly increased with increased neck diameter.

Conclusions: HNA AAAs can be successfully treated with EVAR. However, surveillance is necessary to detect and treat late type I endoleaks in HNA patients.

Autonomy following Revascularisation in 80-year-old Patients with Critical Limb Ischaemia

Lejay A., Thaveau F., Georg Y., Bajcz C., Kretz J.-G., Chakfé N. Eur J Vasc Endovasc Surg 2012;44:562-7.

Objectives: We wanted to compare autonomy recovery after open and endovascular infrainguinal surgery for critical limb ischaemia (CLI) in octogenarians.

Materials and methods: We performed a retrospective analysis of 167 consecutive CLI octogenarians who underwent infrainguinal open surgery (OS) or endovascular surgery (ES) between 2003 and 2008. OS and ES groups were compared in terms of autonomy level (Parker score), survival, limb salvage and patency rates.

Results: Preoperative autonomy level was similar in both groups (OS $n = 109$, ES $n = 58$) but 6-month postoperative autonomy level was better after ES ($p = 0.01$). There was a trend towards better survival after OS (74% at 1 year, 62% at 2 years, 32% at 4 years with OS and 68%, 50%, 17% respectively for ES $p = 0.06$), but no difference regarding limb salvage (91% at 1 year, 90% at 2 years, 89% at 4 years for OS and 94%, 87%, 86% respectively for ES, $p = 0.939$) and primary patency (76% at 1 year, 59% at 2 years, 50% at 4 years for OS and 82%, 75%, 32% respectively for ES, $p = 0.467$).

Conclusions: ES is justified in CLI octogenarians, because it allows restoring a higher autonomy level, with limb salvage and patency rates comparable to OS.

Availability of Supervised Exercise Programs and the Role of Structured Home-based Exercise in Peripheral Arterial Disease

Makris G.C., Lattimer C.R., Lavida A., Geroulakos G. Eur J Vasc Endovasc Surg 2012;44:569-75.

Objectives: The effectiveness of supervised exercise programs (SEPs) for the management of peripheral arterial disease (PAD) can be hampered by low accessibility and poor compliance. The current international availability and use of SEPs was evaluated and the evidence on alternative approaches such as structured, home-based exercise programs (HEPs) was reviewed.

Methods-materials: International survey on SEP availability among vascular surgeons using an online questionnaire. A systematic review on structured-HEPs effectiveness was also performed.

Results: A total of 378 responses were collected from 43 countries, with the majority (95%) from Europe. Only 30.4% of the participants had access to SEPs and within this group there was significant heterogeneity on the way SEPs were implemented. This systematic review identified 12 studies on the effectiveness of HEPs. In 3 studies SEPs were superior to HEPs in improving functional capacity or equivalent in improving quality of life (QoL). HEPs significantly improved most of the functional capacity and QoL markers when compared to the "go home and walk" advice and baseline measurements.

Conclusions: SEPs remain an underutilized tool despite recommendations. Structured HEPs may be effective and can be useful alternatives when SEPs are not available. Further research is warranted to establish cost-effectiveness.

Endovenous Laser Ablation of the Great Saphenous Vein Using a Bare Fibre versus a Tulip Fibre: A Randomised Clinical Trial

Vuylsteke M.E., Thomis S., Mahieu P., Mordon S., Fourneau I. Eur J Vasc Endovasc Surg 2012;44:587-92.

Objective: This clinical trial aimed to evaluate the clinical results of the use of a tulip fibre versus the use of a bare fibre for endovenous laser ablation.

Methods: In a multicentre prospective randomised trial 174 patients were randomised for the treatment of great saphenous vein reflux. A duplex scan was scheduled 1 month, 6 months and 1 year postoperatively. Ecchymosis was measured on the 5th postoperative day. In addition, pain, analgesics requirement, postoperative quality of life (CIVIQ 2) and patient satisfaction rate were noted.

Results: Patients treated with a tulip fibre had significantly less postoperative ecchymosis (0.04 vs. 0.21; $p < 0.001$) and pain (5th day) (1.00 vs. 2.00; $p < 0.001$) and had a better postoperative quality of life (27 vs. 32; $p = 0.023$). There was no difference in analgesic intake ($p = 0.11$) and patient satisfaction rate ($p = 0.564$). The total occlusion rate at 1 year was 97.02% and there was no significant difference between the two groups ($p = 0.309$).

Conclusion: Using a tulip fibre for EVLA of the great saphenous vein results, when compared with the use of a bare fibre, in equal occlusion rates at 1 year but causes less postoperative ecchymosis and pain and in a better postoperative quality of life.